

BS IN INNOVATION, TECHNOLOGY AND DESIGN (HYBRID)

Overview

The **BS in Innovation, Technology and Design**, a multi-disciplinary degree program, is a unique University-wide program that will prepare graduates at the intersection of design, innovation, technology and entrepreneurship. Stewarded by the College of Engineering, with cooperation across the University, the new Bachelor of Science degree program is designed to create entrepreneurial-minded, experienced graduates who will tackle the complexities of real-world challenges and opportunities and translate ideas into sustainable, high-impact ventures. The students will be equipped to effectively integrate concepts from business, art and creativity, ethics, law, and engineering and draw on design tactics for innovation and problem solving. A critical component of this new degree is that most courses are team taught by faculty from multiple disciplines. The students will learn and innovate through experiential design challenges provided by industry partners every semester, and embedded internships and/or civic engagement.

Curriculum Requirements

Code	Title	Credit Hours
GENERAL EDUCATION REQUIREMENTS		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 107	First-Year Writing II: STEM	3
Quantitative Skills (fulfilled thru MTH 161)		
Areas of Knowledge:		
Arts & Humanities Cognate		9
People & Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the major)		
FOUNDATIONAL COURSES		
ITD 102	Career Foundations: Obtaining Experiences to Support Career Goals	1
MTH 161	Calculus I	4
MTH 162	Calculus II	4
ISE 363	Project Management for Engineers	3
BTE 120 or BUS 150	Introduction to Business Technology and Programming Business Analytics	3
Programming Course		3-4
Students must take at least one of the following:		
CSC 120	Computer Programming I	
ECE 118	Introduction to Programming	
Finance/Accounting Courses		
BUS 200	Introduction to Business	3
ISE 380	Engineering Economic Analysis	3
MAJOR COURSES		
Core Courses		
CIM 112	Innovation Design	3
EGN 114	Global Challenges Addressed by Engineering and Technology	3
EGN 123	Computing and Digital Solutions for the future	3
MGT 253	Introduction to Entrepreneurship	3
SOC 305	Globalization and Society	3
GHS 301 or HIS 229	Sociocultural Foundations of Global Health Consumer Society: A Global History	3
CIM 121	Prototyping	3
BTE 360	Systems Analysis and Design	3
MGT 354	Growing the New Venture	3
ITD 220	Ethics, Equity and Responsibility	3
ITD 270	Creativity, the Creative Process and Innovation	3
Approved Electives ¹		12

Select 4 courses with advisor approval from the approved electives list.¹

DESIGN CHALLENGES		
ITD 120	Design Challenges 1 2 - (Problem Identification and Scoping)	3
ITD 134	Design Challenges 3 4 (Empathize and Design)	3
ITD 256 & LAB COMPONENT	Design Challenges 5 6 - (Ideate and Prototype) and	3
ITD 378	Design Challenges 7 8	3
Design Challenge Capstone		
ITD 410	Capstone 1 - Innovation, Technology and Design (Capstone 1)	3
ITD 420	Design Challenge Capstone 2 (Capstone 2)	6
CIVIC/EMPLOYER ENGAGEMENT^{2,4}		6-7
Complete at least 6 or 7 credits from the following options:		
Internship/Civic Engagement:		
ITD 199	Internship 1 ³	
ITD 299	Internship 2 ³	
Research:		
ITD 295	Undergraduate Research in Innovation, Technology, and Design	
Total Credit Hours		121

¹ This list of ITD approved electives is published periodically on the ITD Program website. Refer to <https://itd.miami.edu> and available with the ITD Academic advisor / Cane Navigator. As some of the elective courses have pre-requisites & co-requisites, **students must consult with their Academic advisors / Cane navigator prior to enrollment in these approved electives. Any exceptions or substitutions for the electives requires Program Director's approval.**

² Students who take ECE 118 to fulfill the programming course requirement may need to take 7 credits of civic/employer engagement to meet the total credit hours for the degree.

³ Students are required to attend the lecture component of this course while completing the internship.

⁴ Enrollment in these courses requires program approval

The BS in Innovation, Technology and Design offers two plan of study options for students: an intensive three-year option or a traditional four-year option.

Sample Plan of Study: Intensive Three-Year Option

Students who wish to complete the program in three years can follow the intensive plan of study below. Students in this option would need to complete two required summer internships.

Year One		
Fall		Credit Hours
WRS 105	First-Year Writing I	3
CIM 112	Innovation Design	3
EGN 114	Global Challenges Addressed by Engineering and Technology	3
EGN 123	Computing and Digital Solutions for the future	3
ITD 120	Design Challenges 1 2 - (Problem Identification and Scoping)	3
ITD 102	Career Foundations: Obtaining Experiences to Support Career Goals	1
BUS 200	Introduction to Business	3
Credit Hours		19
Spring		
MTH 161	Calculus I	4
WRS 107	First-Year Writing II: STEM	3
BUS 150	Business Analytics	3
CIM 121	Prototyping	3
ITD 134	Design Challenges 3 4 (Empathize and Design)	3
A&H Cognate		3
Credit Hours		19

Summer		
MTH 162	Calculus II	4
Credit Hours		4
Year Two		
Fall		
MGT 253	Introduction to Entrepreneurship	3
ITD 256	Design Challenges 5 6 - (Ideate and Prototype)	3
A&H Cognate		3
BTE 360	Systems Analysis and Design	3
ISE 380	Engineering Economic Analysis	3
ECE 118 or CSC 120	Introduction to Programming or Computer Programming I	3-4
Credit Hours		18-19
Spring		
ITD 270	Creativity, the Creative Process and Innovation	3
ITD 378	Design Challenges 7 8	3
MGT 354	Growing the New Venture	3
ITD 220	Ethics, Equity and Responsibility	3
SOC 305	Globalization and Society	3
ISE 363	Project Management for Engineers	3
Credit Hours		18
Summer		
Civic/Employer Engagement Courses ¹		6-7
Credit Hours		6-7
Year Three		
Fall		
ITD 410	Capstone 1 - Innovation, Technology and Design	3
GHS 301 or HIS 229	Sociocultural Foundations of Global Health or Consumer Society: A Global History	3
A&H Cognate Course		3
P&S Cognate Course		3
Approved Elective		3
Approved Elective		3
Credit Hours		18
Spring		
ITD 420	Design Challenge Capstone 2	6
P&S Cognate Course		3
P&S Cognate Course		3
Approved Elective		3
Approved Elective		3
Credit Hours		18
Total Credit Hours		120-122

Sample Plan of Study: Traditional Four-Year Option

Students who wish to have the full four-year undergraduate experience can choose to extend the course requirements over four years, rather than three. Below is one example of how a student might do this. This would enable a student to study abroad during the third year or pursue a minor or other co-curricular activities. Students can work with their advisor to fit the internship requirement into their customized plan of study.

Year One		
Fall		Credit Hours
WRS 105	First-Year Writing I	3
CIM 112	Innovation Design	3
EEN 114	Global Challenges Addressed by Engineering and Technology	3

EGN 123	Computing and Digital Solutions for the future	3
ITD 120	Design Challenges 1 2 - (Problem Identification and Scoping)	3
ITD 102	Career Foundations: Obtaining Experiences to Support Career Goals	1
Credit Hours		16
Spring		
MTH 161	Calculus I	4
WRS 107	First-Year Writing II: STEM	3
ITD 134	Design Challenges 3 4 (Empathize and Design)	3
BUS 150	Business Analytics	3
CIM 121	Prototyping	3
Credit Hours		16
Year Two		
Fall		
MGT 253	Introduction to Entrepreneurship	3
BUS 200	Introduction to Business	3
ECE 118 or CSC 120	Introduction to Programming or Computer Programming I	3-4
ITD 256	Design Challenges 5 6 - (Ideate and Prototype)	3
MTH 162	Calculus II	4
Credit Hours		16-17
Spring		
SOC 305	Globalization and Society	3
ITD 220	Ethics, Equity and Responsibility	3
MGT 354	Growing the New Venture	3
ITD 270	Creativity, the Creative Process and Innovation	3
ITD 378	Design Challenges 7 8	3
Credit Hours		15
Year Three		
Fall		
BTE 360	Systems Analysis and Design	3
ISE 380	Engineering Economic Analysis	3
A&H Cognate Course		3
GHS 301 or HIS 229	Sociocultural Foundations of Global Health or Consumer Society: A Global History	3
ITD 199 or 295	Internship 1 or Undergraduate Research in Innovation, Technology, and Design	3-4
Credit Hours		15-16
Spring		
A&H Cognate Course		3
P&S Cognate Course		3
Approved Elective		3
ITD 299 or 295	Internship 2 or Undergraduate Research in Innovation, Technology, and Design	3-4
ISE 363	Project Management for Engineers	3
Credit Hours		15-16
Year Four		
Fall		
ITD 410	Capstone 1 - Innovation, Technology and Design (ITD Capstone 1)	3
P&S Cognate		3
P&S Cognate		3
Approved Elective		3

A&H Cognate	3
Credit Hours	15
Spring	
Approved Elective	3
Approved Elective	3
Design Challenge Capstone 2	6
Credit Hours	12
Total Credit Hours	120-123

Mission

The BS in Innovation Technology & Design program, an initiative of the University of Miami New Century Education Incubator, will prepare students to research, analyze, prototype and design innovative products and processes from concept to launch.

Student Learning Outcomes

- Students will be able to describe and employ various stages of the design-and-innovation process, from initial research to new concept generation and on to implementation.
- Students will be able to integrate social, technological and formal analysis in the design of innovative product, service, and system concepts.
- Students will be able to identify and characterize stakeholders surrounding technology innovation in relation to specific design concepts.
- Students will be able to conduct research and understand the expectations, experiences, and practices of technology users and key stakeholders.